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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,689	11/26/2001	Kiyoshi Fukuchi	02110050AA	3933
30743	7590	10/09/2003	EXAMINER	
WHITHAM, CURTIS & CHRISTOFFERSON, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190			WONG, ERIC K	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/991,689

Applicant(s)

FUKUCHI, KIYOSHI

Examiner

Eric Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 12 and 16-24 is/are rejected.
- 7) ☒ Claim(s) 5-11, 13-15 and 25-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 3-4, 16, 18-19, 21-22, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent Number 6,459,528 to Cao.

As to claim 1, 16, 19 and 22, Cao discloses in figure 14, an optical wavelength-multiplexing transmission system for transmitting a first wavelength (red; dotted line) and second wavelength-multiplexing light (blue; solid line) in opposite directions through an optical transmission medium allowing bi-directional wavelength-multiplexing transmission, wherein

- A wavelength band of the first wavelength-multiplexing light is set to a shorter wavelength side as compared to a wavelength band of the second wavelength-multiplexing light (red < blue, column 3, lines 49-53), and
- Excitation light having a wavelength shorter than the wavelength band of the first, wavelength-multiplexing light travels through the optical transmission medium in a same direction as the second wavelength-multiplexing light (column 2, lines 38-41).
- Two amplifiers for amplifying light (1406)

As to claims 3, 18, 21, and 24, the light wavelengths are at least 100nm.

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As to claim 4, a first and second transceiver for input/output light is used (904, 902).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 17, 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao as applied to claims 1, 16, 19 and 22 above.

Cao discloses wavelengths of excitation light shorter than multiplexing light, but fails to explicitly disclose the wavelength by determining the Raman scattering characteristics of the transmission medium.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the wavelength depending on the Raman scattering characteristic of the transmission medium since it was known in the art that Raman amplification characteristics can reduce power loss of an optical signal (Paragraph 13, Applicant's disclosure of prior art).

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cao as applied to claim 1 above.

Cao discloses the use of wavelength multiplexing light in the range centered near a wavelength of 1550nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a range for the first wavelength multiplexing light between

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1480nm to 1520nm and the second wavelength multiplexing light in a range between 1580nm to 1620nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum range or workable ranges involves only routine skill in the art.

Claim Objections

6. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art made of record fails to explicitly disclose a repeater provided between two transceivers comprising an excitation light injector.

7. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art made of record fails to explicitly disclose a second end device comprising a third and fourth transceiver for injecting light.

8. Claims 8-11, 13-15, and 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art made of record fails to explicitly disclose a third wavelength multiplexing light.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. United States Patent Number 5,673,133 to Imaoka et al. for a WDM bi-directional communication system (Figure 8).


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 703-305-4741. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 703-308-4819. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

EW



HEMANG SANGHAVI
PRIMARY EXAMINER